NOTICE OF PROPOSED RULEMAKING

(This summary is intended to be an informational tool in understanding the Notice of Proposed Rulemaking for ET Docket 03-122)

For Informational Purposes Only

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1. INTRODUCTION

A. This Notice of Proposed Rulemaking (NPRM) is a direct reply to a Petition for Rulemaking filed by Wireless Ethernet Compatibility Alliance (WECA).[1] In this NPRM, the Federal Communications Commission (FCC) recommends modifying the Part 15 Rules governing the operation of unlicensed National Information Infrastructure (U-NII) devices[2] and radio local area networks (RLAN), and allocating 255 megahertz (MHz) of spectrum in the 5.47–5.725 gigahertz (GHz) band for services that use these devices and networks.[3]

B. In this NPRM, the FCC concludes that the added spectrum would increase the amount of spectrum for use by unlicensed devices in the 5 GHz area by 80 percent and would represent a major upsurge in the spectrum available for unlicensed devices across general radio spectrum.

C. Furthermore, the FCC states that the additional 255 MHz of spectrum and ease of deployment would foster the development of a wide range of new innovative unlicensed devices.

D. To aid allocating this additional spectrum for U-NII devices and RLANs, the FCC suggests changes to the U.S. Table of Frequency Allocations to assist in fulfilling the requirements of other radio services operating in the 5 GHz area of spectrum. The FCC recommends changes to the U.S. Table Frequency Allocations in Part 2 of the Rules to raise the status of the Federal Government Radiolocation service to "primary" in the 5.47–5.65 GHz band.[4] In addition, the FCC would like to add primary allocations for the Federal Government and secondary allocations for the non-Federal Government Space Research Service (active) (SRS) in the 5.35–5.57 GHz band and the Earth Exploration-Satellite Service (active) (EESS) in the 5.46–5.57 GHz band.

[1] See WECA Petition for Rulemaking, RM-10371, filed on January 15, 2002, Public Notice Report No. 2527, January 29, 2002 (*WECA Petition)*.
[2] U-NII devices are "intentional radiators operating in the frequency bands 5.15–5.35 GHz and 5.725–5.825 GHz that use wideband digital modulation techniques and provide a wide array of high data rate mobile and fixed communications for individuals, business, and institutions." 47 C.F.R §15.403(I).
[3] See 47 C.F.R. Part 15 Subpart E-Unlicensed National Information Infrastructure Devices.
[4] The U.S. Table of Frequency Allocations is set forth in §2.106 of the Commission's Rules, 47 C.F.R. § 2.106.

2. BACKGROUND

A. Initially, the FCC Part 15 Rules for U-NII devices permitted operation in a total of 300 MHz of spectrum in the 5.150–5.250 GHz and 5.725-5.825 GHz bands. Currently, many of the devices operating under these Rules are designed to meet the Institute of Electrical and Electronic Engineers (IEEE) 802.11(a) industry standard for wireless local area networks.

B. On January 15, 2002, the WECA submitted a Petition for Rulemaking seeking a supplementary 255 MHz of spectrum for use by U-NII devices in the 5.470–5.725 GHz band.[5] The WECA stated that this added spectrum was needed to meet the demand for unlicensed RLANs that were capable of operating at data rates of up to 54 megabits per second. RLANs offer cost-effective access to broadband services for businesses and consumers.

C. Most commenters supported WECA's proposal for raising the amount of spectrum accessible for U-NII equipment. The segment of the 5.350–5.650 GHz band mentioned in the WECA petition is currently allocated internationally to the Radiolocation service on a secondary basis. Furthermore, the U.S. Department of Defense (DoD) uses this band for a number of radar systems, including systems used for national security. DoD noted concerns that if this request for reallocation were granted, RLAN systems would cause interference to its radar systems and pointed out that these radar systems would be compelled to accept that interference. DoD indicated that it would be vital to national security to elevate the Radiolocation service allocation from secondary to primary status. The National Aeronautical and Space Administration (NASA) has supported allocating additional spectrum for SRS in the 5.35–5.57 GHz band and EESS in the 5.46–5.57 GHz band.

D. In this NPRM, the FCC notes that in preparing for the U.S. World Radiocommunication Conference 2003 (WRC-03), the National Telecommunications and Information Administration, FCC, NASA, and DoD, working closely with industry, reached agreement on U.S. proposals for the WRC-03 Agenda Item 1.5:[6]

- Upgrade the Radiolocation service to primary status in the 5.350–5.650 GHz band to protect sensitive DoD operations
- Add the allocation for the SRS in the 5.35–5.46 GHz band and for the EESS and SRS in the 5.46–5.57 GHz band.

[5] See WECA Petition.

[6] See U.S. Department of Commerce, NTIA, "Agreement Reached Regarding U.S. Position on 5 GHz Wireless Access Devices," ("WRC-03 Agreement"), rel. Jan. 31, 2003, (available at http:??www.ntia.doc.gov/ntiahome/press/2003/5ghzagreement.htm.) The World Radiocommunication Conference 2003 (WRC-03) is scheduled for June 9-July 4, 2003, in Geneva, Switzerland. In Agenda Item 1.5, WRC-03 will consider spectrum allocations for the mobile, fixed, EESS, and SRS, and the upgrade of the Radiolocation service in the frequency range 5.15–5.725 GHz..

- Add a Mobile allocation to the 5.150–5.350 GHz and 5.470–5.725 GHz bands.

- Require U-NII or HiperLAN users in the 5.250–5.350 GHz and 5.470–5.725 GHz bands to employ dynamic frequency selection (DFS).[7]

[7] See WECA Petition at para. 8.

3. DISCUSSION

A. In this NPRM, the FCC concludes the proposed rule changes would encourage the growth of unlicensed wireless broadband devices and networks to benefit the American public. Furthermore, the FCC notes that these modified Rules would ensure that incumbent radio services are protected against harmful interference. The FCC ***seeks comment*** on the proposed rule changes.

B. In its Petition for Rulemaking, the WECA noted that the spectrum currently available for U-NII devices was insufficient to support long-term growth for unlicensed wireless broadband devices and networks. In this NPRM, the FCC highlights in a white paper containing market projections that indicated that unlicensed wireless network products grew rapidly over the past 2 years and future sales volumes were predicted to increase even more if market conditions improved.

C. In this NPRM, the FCC notes that commercially unlicensed wireless broadband networks that would significantly benefit businesses and consumers have already been offered or been announced. The FCC concludes that an additional 255 MHz of spectrum should be made available under the U-NII Rules to meet the growing demand for new high data rate devices and services as well as to enable equipment to use spectrum that is harmonized with the European HiperLAN standards.

3.1 Proposed Changes to the Table of Frequency Allocation

A. The FCC suggests altering the U.S. Table of Frequency Allocations in Part 2 of the Rules to advance the status of the Federal Government Radiolocation service to primary in the 5.46–5.65 GHz band.

B. The FCC recommends changing Part 15 Rules to allow U-NII devices to operate in the 5.470–5.725 GHz band on a non-interference basis.

C. The FCC ***seeks comment*** on these changes to the Parts 2 and 15 of the Rules.

3.2 Proposed Changes to U-NII Rules

A. Under the Part 15 U-NII Rules, the FCC notes that there are three different frequency sub-bands available to U-NII devices, each with a particular set of technical requirements based on its sharing environment:

- Indoor operations: 5.150–5.250 GHz sub-band
- Indoor and outdoors use with a higher power limit: 5.250–5.350 GHz sub-band
- Indoor and outdoor use with an even higher power limit: 5.725–5.825 GHz sub-band.

B. The FCC suggests adding the 5.470–5.725 GHz band to the U-NII bands with the same technical requirements that apply to the existing 5.250–5.350 GHz U-NII sub-band. The FCC adds that the current 100 MHz of spectrum available at 5.725–5.825 GHz is sufficient for higher power operations.

C. In addition, the FCC proposes that the U-NII devices operate in both the existing 5.250–5.350 GHz sub-band and the new 5.470–5.725 GHz sub-band employ a "listening-before-talk" mechanism called DFS. DFS is an interference avoidance mechanism that would monitor for radar signals in an area and if such signals were detected, would move the U-NII transmission to another channel or cause the U-NII device to enter a sleep mode.

D. The FCC proposes requiring a transmit power control (TPC) mechanism to mitigate potential impact to incumbent operations in the 5.470–5.725 GHz band. The TPC would monitor the transmitter's output power based on the signal level of the receiver and adjust power levels accordingly to reduce interference and increase network capacity.

E. The FCC ***seeks comment*** on appropriate test procedures related to compliance with the DFS and TPC requirements discussed in this proceeding.

E. The FCC notes that U-NII devices currently operate in 5.250–5.350 GHz band without DFS capability. The FCC states that all U-NII devices operating in the 5.250–5.350 GHz band that are imported or shipped in interstate commerce, on or after 2 years from the date of publication of the proposed Rules in the *Federal Register*, should comply with these standards. Any devices certified after 1 year from the publication of the Report and Order must comply with the DFS requirement.

4. CONCLUSION

In this NPRM responding to a Petition for Rulemaking submitted by WECA, the FCC recommends changing regulations to add 255 MHz to the 300 MHz of spectrum that is already available for U-NII devices in the 5 GHz region of the spectrum. The FCC estimates an 80-percent increase in available spectrum for unlicensed devices in 5 GHz. Furthermore, the FCC suggests technical rules to protect all incumbent radio services, both Government and non-Government against harmful interference. Finally, the FCC ***seeks comments*** on this proposal.